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10/590,235	08/22/2006	Nobuaki Kiya	13372/24	6906

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EXAMINER	
DOUYETTE, KENNETH J	
ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,235	KIYA ET AL.	
	Examiner	Art Unit	
	KENNETH DOUYETTE	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/22/06, 12/13/07, and 7/13/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method of detecting and responding to a cooling system failure in a power supply device.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 5-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 2, 5, 8 and 9, all recite an operation occurring when "cooling...is unnecessary". It is unclear exactly what this means, since an operation would also be unnecessary when the device is off. For the purposes of this office action, the phrase "cooling... is unnecessary" will be interpreted as an operation occurring continuously as long as a device is "on". Further, claims 6-7 and 10-11 are rejected since they depend from claim 5.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu et al. (US 5,796,580) in view of Saito et al. (US 2003/0118891) and further in view of Kato et al. (US 6,377,880).

Regarding claim 1, Komatsu et al. discloses in Figs 1-96, a power supply device (unit comprising refs 11 and 4a) comprising:

- a first voltage generator (ref 11)
- a first coolant path (ref 740) allowing a coolant to pass there through;
- a second voltage generator (ref 4a) having a second coolant path (ref 730) allowing the coolant for cooling the second voltage generator (ref 4a) to pass there through;
- a first cooling system (ref 7b) supplying the coolant (C16/L37-38, ref 22) to a coolant intake side of said first coolant path (ref 740);
- a second cooling system (ref 7a) supplying the coolant (C16/L37-38, ref 22) to a coolant intake side of said second coolant path (ref 730);
- a coolant discharge path (ref 750) connected to both (depicted in Fig 64) of a coolant discharge side of said first coolant path (ref 740) and a coolant discharge side of said second coolant path (ref 730);
- a control circuit (C19/L16) controlling an operation (C19/L13-16) of each of said first and second cooling systems (refs 7b, 7a), the flow channels (refs 740, 730) each have distinct temperatures (C16/L66-67) controlled by the control circuit (C19/L16) via temperature sensors (C19/L13-24)

Komatsu et al. does not disclose

- the first voltage generator is cooled by the first coolant path.
- a first temperature sensor attached to said first voltage generator;

- a second temperature sensor attached to said first voltage generator on the coolant discharge side of said first coolant path, relative to said first temperature sensor.

Saito et al. discloses in Fig 1, a temperature controlling apparatus for a vehicle battery (Abstract) comprising a dc/dc converter (ref 6) with a temperature sensor (ref 24) attached. The temperature sensor (ref 24) is measured by an ECU (ref 17), to prevent overheating, enhancing performance ([0077]). Further, Saito et al. discloses a battery (ref 1) comprising sensors (refs 21) and cooled by a fan (ref 18). An ECU (ref 17) measures the temperature and prevents overheating, enhancing performance and prolonging useful life by preventing damage ([0076]).

Saito et al. and Komatsu et al. are analogous since both deal in the same field of endeavor, batteries and cooling systems.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the temperature sensors attached to the battery and dc/dc converter, and to have the cooling fan cool the battery as disclosed by Saito et al. into the device of Komatsu et al. to impart the ability to detect the temperatures of the battery and dc/dc converter respectively, allowing a cooling fan to reduce the risk of component damage due to overheating. This increases the useful life of the power device and enhances performance.

Komatsu et al. also does not explicitly explicitly disclose the operation of the circuit control:

- wherein when said control circuit issues an operation instruction to each of said first and second cooling systems, said control circuit detecting failure in said first cooling system when a temperature difference between temperature detected by said first temperature sensor and temperature detected by said second temperature sensor is larger than a reference value.

Kato et al. discloses in Figs 1-3, a cooling fan failure detection apparatus for a vehicle (Abstract) comprising a temperature difference calculation unit (ref 62). The temperature difference calculation unit (ref 62) determines the difference in temperatures between two parameters and causes a fan (ref 18) to adjust the flow of a coolant, preventing system overheating (C8/L62 – C9/L8).

Kato et al. and Komatsu et al. are analogous since both deal in the same field of endeavor, namely, cooling systems for electrical devices.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the temperature difference calculation unit of Kato et al. into the device of Komatsu et al. to impart into the device the ability to respond to a difference in temperatures thereby preventing overheating of electrical devices.

Further, regarding limitations recited in claim 1, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim.

Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 4, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said first voltage generator (ref 11) is a secondary battery ("battery is charged", C34/L52), and said second voltage generator (ref 4a) is a power converter (C17/L22-23) having a semiconductor power switching element embedded therein (C17/L22-28, AC/DC does not have semiconductor, but DC/DC does).

9. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu et al. (US 5,796,580) in view of Saito et al. (US 2003/0118891) and Kato et al. (US 6,377,880) as applied to claim 1 above and further in view of Soo (US 5,548,206) and further in view of Duncan et al. (US 4,870,863).

Regarding claim 2, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said control circuit (C19/L16) operates said first and second cooling systems (refs 7b, 7a) at variable speeds (C19/L13-14) based on

temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730). Each cooling system is in constant operation, serving in an auxiliary manner when overheating is not a concern controlled by the control circuit (C19/L16), but since they operate at variable speeds (C19/L3-14), wasteful amounts of coolant supply is avoided (C8/L24/32). Since both cooling systems (refs 7b, 7a) are operating, and are separated by a double wall (C7/L66-67), both of said systems can be isolated (C7/L66-67), preventing cross flow between channels (refs 740, 730). However, Komatsu et al. does not disclose a third temperature sensor attached to said second voltage generator, wherein said control circuit operates said second cooling system to cool said second voltage generator based on a temperature detected by said third temperature sensor.

Soo discloses a dual mode dc/dc converter (Abstract) comprising two sensors (Abstract). This configuration allows a dc/dc converter (Abstract) to respond to multiple conditions, allowing a battery to operate in different power modes as needed (C3/L16-19), resulting in the extension of the useful life of a powder generating device (battery) (C2/L62-65).

Soo and Komatsu et al. are analogous since both deal in the same field of endeavor, namely, batteries.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the dual mode dc/dc converter comprising two sensors as disclosed by Soo into the dc/dc converted of Komatsu, to impart the ability to respond to multiple sensed conditions, altering power conversion and operation accordingly based

on the conditions sensed by the sensors. This results in extension of the useful life of a power generating device.

Further, since the prior art of Duncan et al. recognizes the interchangeability of sensors (Duncan et al., C3/L44-47) in the field of electronics, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the current sensors of Soo with the temperature sensors (Duncan et al., C12/L53) of Duncan et al. as it is merely the selection of different sensors recognized in the art and one of ordinary skill in the art would have a reasonable expectation of success in doing so.

Additionally, regarding limitations recited in claim 2, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 3, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said control circuit (C19/L16) operates said first and second cooling systems (refs 7b, 7a) at variable speeds (C19/L13-14), resulting in two distinct flow rates in each cooling path (refs 740, 730). Therefore, at any given time, one flow rate may be higher or lower than the other based on readings from temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730).

Further, regarding limitations recited in claim 3, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

10. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu et al. (US 5,796,580) in view of Saito et al. (US 2003/0118891).

Regarding claim 5, Komatsu et al. discloses in Figs 1-96, a power supply device (unit comprising refs 11 and 4a) comprising:

- a first voltage generator (ref 11)

- a first coolant path (ref 740) allowing a coolant to pass there through;
- a second voltage generator (ref 4a) having a second coolant path (ref 730) allowing the coolant for cooling the second voltage generator (ref 4a) to pass therethrough;
- a first cooling system (ref 7b) supplying the coolant (C16/L37-38, ref 22) to a coolant intake side of said first coolant path (ref 740);
- a second cooling system (ref 7a) supplying the coolant (C16/L37-38, ref 22) to a coolant intake side of said second coolant path (ref 730);
- a coolant discharge path (ref 750) connected to both (depicted in Fig 64) of a coolant discharge side of said first coolant path (ref 740) and a coolant discharge side of said second coolant path (ref 730);
- a control circuit (C19/L16) controlling an operation (C19/L13-16) of each of said first and second cooling systems (refs 7b, 7a) at variable speeds (C19/L13-14) based on temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730). Each cooling system is in constant operation, serving in an auxiliary manner when overheating is not a concern controlled by the control circuit (C19/L16), but since they operate at variable speeds (C19/L3-14), wasteful amounts of coolant supply is avoided (C8/L24/32).

Komatsu et al. does not disclose

- the first voltage generator is cooled by the first coolant path.

Saito et al. discloses in Fig 1, a battery (ref 1) comprising sensors (refs 21) and cooled by a fan (ref 18). An ECU (ref 17) measures the temperature and prevents overheating, enhancing performance and prolonging useful life by preventing damage ([0076]).

Saito et al. and Komatsu et al. are analogous since both deal in the same field of endeavor, batteries and cooling systems.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the cooling of the battery by a fan as disclosed by Saito et al. into the device of Komatsu et al. to impart the ability to cool a battery, reducing the risk of component damage due to overheating. This increases the useful life of the power device and enhances performance.

Further, regarding limitations recited in claim 5, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 6, modified Komatsu et al. discloses all of the claim limitations as set forth above but does not disclose said control circuit controls the operation of each of said first and second cooling systems, based on an output of each of temperature sensors provided at said first and second voltage generators.

Saito et al. discloses in Fig 1, a temperature controlling apparatus for a vehicle battery (Abstract) comprising a dc/dc converter (ref 6) with a temperature sensor (ref 24) attached. The temperature sensor (ref 24) is measured by an ECU (ref 17), to prevent overheating, enhancing performance ([0077]). Further, Saito et al. discloses a battery (ref 1) comprising sensors (refs 21) and cooled by a fan (ref 18). An ECU (ref 17) measures the temperature and prevents overheating, enhancing performance and prolonging useful life by preventing damage ([0076]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the temperature sensors attached to the battery and dc/dc converter, and to have the cooling fan cool the battery as disclosed by Saito et al. into the device of Komatsu et al. to impart the ability to detect the temperatures of the battery and dc/dc converter respectively, allowing a cooling fan to reduce the risk of component damage due to overheating. This increases the useful life of the power device and enhances performance.

Further, regarding limitations recited in claim 6, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114

and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 7, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said control circuit (C19/L16) operates said first and second cooling systems (refs 7b, 7a) at variable speeds (C19/L13-14), resulting in two distinct flow rates in each cooling path (refs 740, 730). Therefore, at any given time, one flow rate may be higher or lower than the other based on readings from temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730).

Further, regarding limitations recited in claim 7, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 8, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said control circuit (C19/L16) operates said first and second cooling systems (refs 7b, 7a) at variable speeds (C19/L13-14) based on temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730). Each cooling system is in constant operation, controlled by the control circuit (C19/L16), but since they operate at variable speeds (C19/L3-14), wasteful amounts of coolant supply is avoided (C8/L24/32). The sensors (ref 34, C19/L17-19) input signals to the control circuit (C19/L16) which in turn operates the cooling systems (refs 7b, 7a) of respective cooling paths (refs 740, 730). Therefore, each path (refs 740, 730) can be maintained at a different temperature based on the relative heats of the components with each path (refs 740, 730).

Further, regarding limitations recited in claim 8, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 9, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said control circuit (C19/L16) operates said first and second cooling systems (refs 7b, 7a) at variable speeds (C19/L13-14), resulting in two distinct flow rates in each cooling path (refs 740, 730). Therefore, at any given time, one flow rate may be higher or lower than the other based on readings from temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730).

Further, regarding limitations recited in claim 9, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 10, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses:

- a first duct (ref 741) provided between a discharge side of said first cooling system (7b) and said first coolant path (740); and

- a second duct (ref 27) branching off (Fig 64 depicts structure comprising ref 27 extending through ref 760 from ref 740 to ref 730, therefore the duct or path which is defined by ref 741 is in fluid communication with ref 27) from said first duct (ref 741), wherein
- an intake side (in arrow, Fig 64) and a discharge side (out arrow, Fig 64) of said second cooling system (ref 7b) are coupled to (depicted in Fig 64 by fluid communication between refs 741 and 27 via refs 740 and 730) said second duct (ref 27) and said second coolant path (ref 730), respectively.

Regarding claim 11, modified Komatsu et al. discloses all of the claim limitations as set forth above and also discloses said control circuit (50) controls the operation of each of said first and second cooling systems (refs 7b, 7a) such that said second voltage generator (ref 4a) is maintained to be at not more than a control target temperature, via said control circuit (C19/L16) operating said first and second cooling system (ref 7b, 7a) at variable speeds (C19/L13-14) based on temperature sensors (ref 34, C19/L17-19) located within the cooling flow paths (refs 740, 730), therefore the temperature of the second voltage generator (ref 4a) is maintained below a threshold temperature where overheating occurs, and therefore the cooling flow paths (refs 740, 730) are also maintained below a threshold temperature where component overheating occurs.

- first voltage generator (ref 11) is a secondary battery ("battery is charged", C34/L52); and

- said second voltage generator (ref 4a) is a power converter (C17/L22-23) having a semiconductor power switching element embedded therein (C17/L22-28, AC/DC does not have semiconductor, but DC/DC does); wherein
- said control target temperature of said power converter (ref 4a) is higher than (since dc/c converter contains a semiconductor, it is allowed to be at a higher temperature than a battery, C17/L22-42) said control target temperature (ref 11 is isolated from the cooling flow path by a lid, ref 61, C37/58-64, and battery only operates in an auxiliary manner when power is interrupted, C37/L59-61, therefore the temperature is lower than that of ref 4a) of said secondary battery (ref 11).

Komatsu et al. does not disclose

- the first voltage generator is cooled by the first coolant path.

Saito et al. discloses in Fig 1, a battery (ref 1) comprising sensors (refs 21) and cooled by a fan (ref 18). An ECU (ref 17) measures the temperature and prevents overheating, enhancing performance and prolonging useful life by preventing damage ([0076]).

Saito et al. and Komatsu et al. are analogous since both deal in the same field of endeavor, batteries and cooling systems.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the cooling of the battery by a fan as disclosed by Saito et al.

into the device of Komatsu et al. to impart the ability to cool a battery, reducing the risk of component damage due to overheating. This increases the useful life of the power device and enhances performance.

Further, regarding limitations recited in claim 11, which are directed to a manner of operating disclosed power device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH DOUYETTE whose telephone number is (571)270-1212. The examiner can normally be reached on Monday - Thursday 6am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. D./
Examiner, Art Unit 1795

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795